

In the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Withdrawn) A nucleic acid molecule encoding a MUC-1 derivative which is capable of raising an immune response *in vivo*, said response being capable of recognising a MUC-1 expressing tumour, wherein the nucleic acid has a RSCU value for the non-repeat region of at least 0.6 and has a level of identity of less than 85% in comparison with the MUC-1 VNTR nucleotide sequence shown in Figure 9, with respect to the corresponding non-repeat region of wild type MUC-1.

2. (Withdrawn) A nucleic acid molecule as claimed in claim 1 wherein the RSCU is at least 0.65%.

3. (Withdrawn) A nucleic acid molecule as claimed in claim 1 wherein the identity is less than 80%.

4. (Withdrawn) A nucleic acid molecule encoding a MUC-1 derivative as claimed in claim 1 having less than 15 perfect repeat units.

5. (Withdrawn) A nucleic acid molecule as claimed in claim 4 having no perfect repeats.

6. (Withdrawn) A nucleic acid molecule as claimed in claim 1 of which is devoid of a signal sequence.

7. (Withdrawn) A nucleic acid molecule as claimed in claim 1 that encodes one or more of the sequences from the group: FLSFHISNL; NSSLEDPSTDYYQELQRDISE; and NLTISDVSV.

8. (Withdrawn). A nucleic acid molecule as claimed in claim 1 additionally comprising a heterologous sequence that encodes a T-Helper epitope.

9. (Withdrawn) A nucleic acid molecule as claimed in claim 1 that is a DNA molecule.
10. (Withdrawn) A plasmid comprising the DNA molecule of Claim 1.
11. (Withdrawn) A pharmaceutical composition comprising a nucleic acid as claimed in claim 1 and a pharmaceutical acceptable excipient, diluent or carrier.
12. (Withdrawn) A pharmaceutical composition as claimed in claim 11 wherein the carrier is a microparticle.
13. (Withdrawn) A pharmaceutical composition as claimed in claim 12 wherein the microparticle is gold.
14. (Withdrawn) A pharmaceutical composition as claimed in claim 11 additionally comprising an adjuvant.
15. Cancel.
16. (previously presented) A method according to claim 17, wherein said nucleic acid molecule is in a pharmaceutical composition comprising a pharmaceutically acceptable excipient, diluent or carrier.
17. (Previously presented) A method of treating a MUC-1 over-expressing epithelial cell tumor in a mammal, comprising administering to said mammal a nucleic acid molecule encoding a MUC-1 protein that raises an immune response to MUC-1 in said mammal, said immune response recognising a MUC-1 over-expressing tumour, wherein the ~~non-repeat~~ region of the nucleic acid molecule encoding the non-repeat region of the encoded MUC-1 protein has a Relative Synonymous Codon Usage (RSCU) value of at least 0.6 and has a level of nucleotide identity of less than 85% in comparison with the ~~non-repeat~~ region of SEQ ID

NO:16 encoding the non-repeat region of the encoded MUC-1 protein, where said nucleic acid molecule is administered in an amount effective to raise an immune response to MUC-1.

18. (Withdrawn) A medicament comprising a plasmid as claimed in claim 10.

19-20. Cancel.

21. (previously presented) A method according to claim 17 wherein said nucleic acid molecule encodes a MUC-1 protein having fewer than 15 perfect repeat units.

22. (previously presented) A method according to claim 17 wherein said nucleic acid molecule encodes a MUC-1 protein having no perfect repeat units.

23. (previously presented). A method according to claim 17 wherein said nucleic acid molecule additionally comprises a heterologous sequence that encodes a T-Helper epitope.

24. (previously presented) A method according to claim 16 wherein said pharmaceutical composition additionally comprises an adjuvant.

25. (previously presented) A method according to claim 17 wherein said nucleic acid molecule is contained within a plasmid.

26. (Currently amended) A method ~~according to claim 17~~ of treating a MUC-1 over-expressing epithelial cell tumor in a mammal, comprising administering to said mammal a nucleic acid molecule encoding a MUC-1 protein that raises an immune response to MUC-1 in said mammal, said immune response recognising a MUC-1 over-expressing tumour, wherein said nucleic acid molecule comprises a sequence selected from SEQ ID NO:13 and SEQ ID NO:14, where said nucleic acid molecule is administered in an amount effective to raise an immune response to MUC-1.